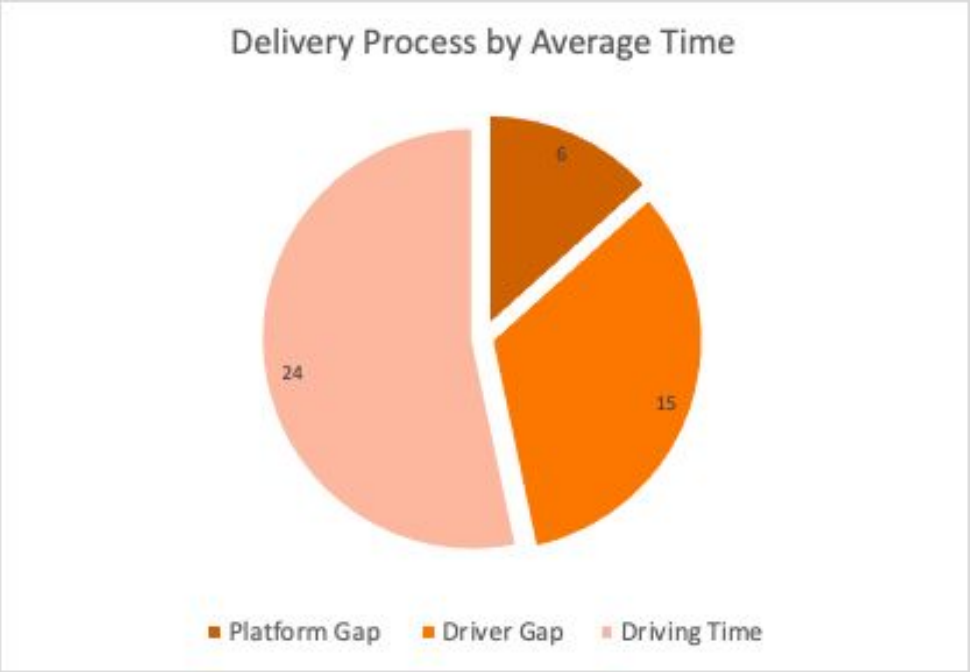
Data Preparations and Assumptions

- Due to the formatting of the data a month needed to be assigned to each date so that the time data could be accurately manipulated
- For this exercise, I removed any rows with missing data columns, since this could severely impact time calculations
- I split the data into deliveries that were made immediately and deliveries that were scheduled
- For immediate deliveries, I confined the data to deliveries that took more than 1 second and less than one day
    - One of the issues with having a number rather than an actual date for the data is that in order to subtract values, a date must be assigned. This leads to issues when the date of delivery is in the next month, such as on the 2nd, but the date the order was received is the 31st.
- For scheduled deliveries, I confined the data to deliveries that took more than 1 second, as multi-day delivery times would be plausible

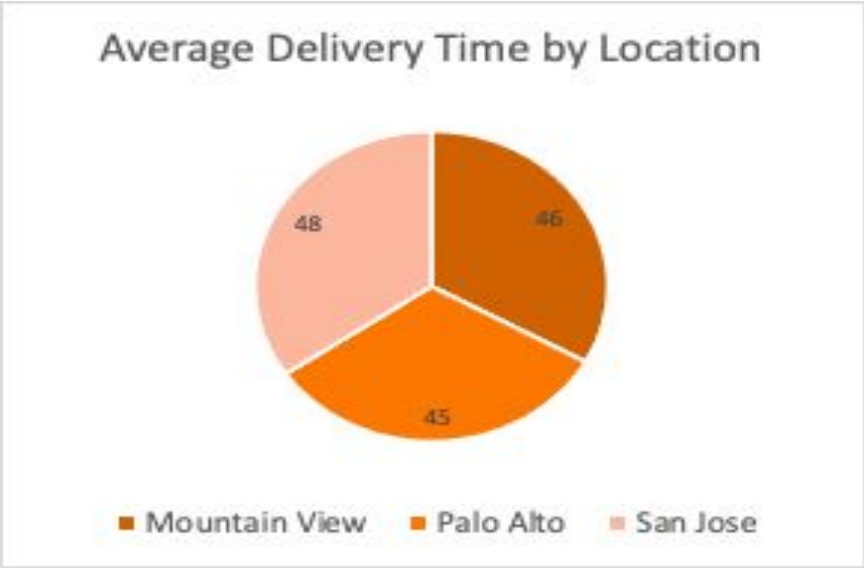
Immediate Deliveries - What is the Time Budget?

- On average, it takes about 46 minutes for a delivery to be completed from when the order is placed on the platform
- The average time for an order to go through to a restaurant from the platform is 6 minutes
- The average time it takes a driver to arrive at the restaurant is about 15 minutes
- The average time it takes a driver to deliver the order is about 24 minutes

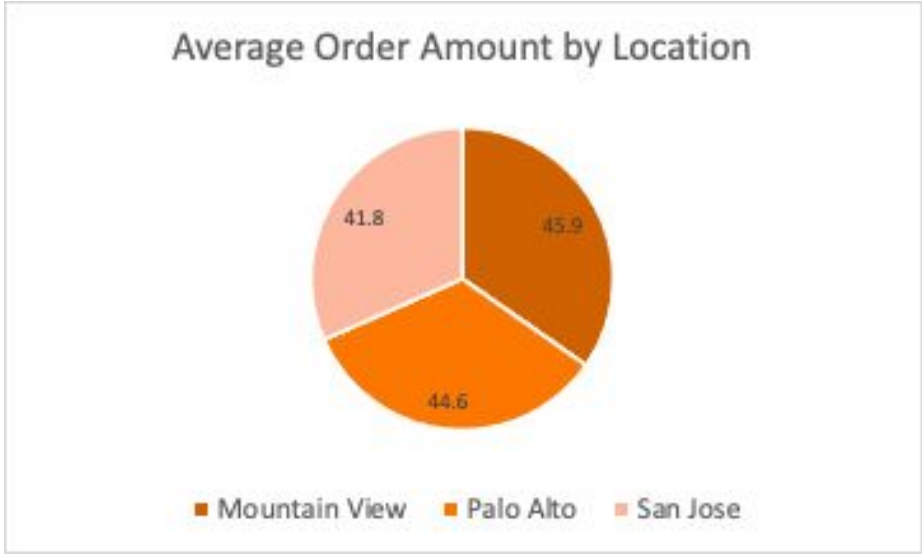


Does Location Affect Operations?

- Location does not seem to impact the overall average time it takes for a delivery to be made. Palo Alto is slightly faster, but the difference is negligible



- Location also does not seem to impact the average amount of an order, the average order amount is similar at each location to the overall average, which is $44.39

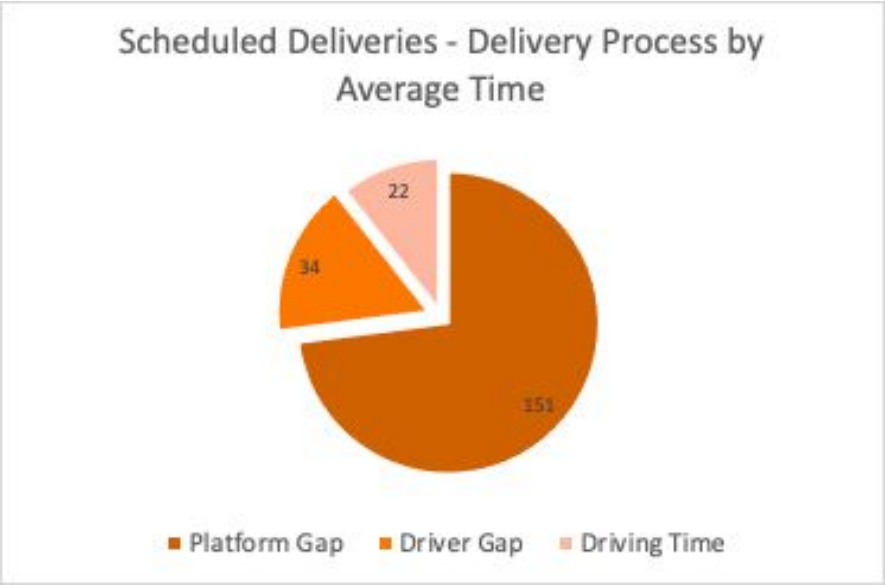


Restaurants and Drivers

- The 5 restaurants with the highest number of orders have an average delivery time of 46 minutes, the same as the general average delivery time and an average order total of $43.82, which is slightly less than the overall order total
- There are a number of restaurants that have low order times and order total amounts that are higher than average
- Of the 5 restaurants with the lowest delivery times, 3 of them have average order totals that are above the general average (even though this is based on a low number of orders)
- On average it takes a delivery driver 25 minutes to drive from the restaurant to the customer, however there are drivers that take much longer on average to deliver orders. A performance rubric could be created for drivers and bonuses could be structured based on average time of delivery and total number of deliveries made.

Scheduled Deliveries

- I would need to know more about DoorDash operations - but the largest gap between a customer placing a scheduled delivery and the delivery being reported to the restaurant was 6 days, which is either an outlier or deliberately scheduled in advance. Comparing the time/date a delivery was scheduled for with the time/date it was delivered would be helpful for this subset of data
- It seems that on average, deliveries are being scheduled for later on during the same day.



- The time it takes the driver to arrive at the restaurant for scheduled deliveries is much higher than for immediate deliveries, 34 minutes on average vs. 15 for immediate deliveries

Suggestions

- Software updates may allow orders to be sent to the platform even more quickly and minimize the time between the order being placed by the consumer and the order arriving at the restaurant. The order with the highest gap between the customer placing the order and the order arriving at the restaurant was 1 hour 57 minutes - more investigation would have to be done into the root cause of the glitch
- The time it takes to deliver an order is somewhat fixed, since there are spatial constraints. However, restaurants that have a high number of deliveries may be able to have drivers on site during times when high numbers of orders come in
- There is an opportunity to market restaurants that have low delivery times more widely to customers nearby through the app, or provide discounts for these restaurants

Suggestions

- Restaurants with low delivery times could be part of special marketing promotions for getting a quick bite on a weeknight, etc.
- A performance rubric or bonus for drivers could incentivize lower delivery times for drivers that have higher times on average
- For scheduled deliveries, I would want to speak to restaurants to see how they are scheduling drivers for these orders vs. immediate orders. Maybe there is way to add something to the app to match drivers with restaurants that have scheduled deliveries more quickly

Future Questions

- For scheduled deliveries, although we can look at data about how long it took a driver to get the food from the restaurant to the customer, it would be helpful to know the date the food was scheduled for delivery so the difference in scheduled delivery time and actual delivery time could be calculated
- Due to not having the exact date, it is also difficult to look at whether the day of the week affects if a delivery is made on time or not and how much daily traffic patterns affect delivery times